

CLAIMS

What is claimed is:

1. An interlaced waveguide hologram comprising:
 - 10 a. a first holographic recording; and,
 - b. a second holographic recording interlaced with the first holographic recording.
- 15 2. The interlaced waveguide hologram of claim 6, wherein the first holographic recording corresponds to a first visual field and the second holographic recording corresponds to a second visual field.
3. The interlaced waveguide hologram of claim 7, wherein the first visual field is a right visual field and the second visual field is a left visual field.
- 20 4. The interlaced waveguide hologram of claim 6 wherein each holographic recording is a predetermined width.
5. The interlaced waveguide hologram of claim 9, wherein the predetermined
25 width is approximately 2.5 inches.

6. The interlaced waveguide hologram of claim 6, wherein the first holographic recording combines with the second holographic recording to create a three dimensional effect when in use.
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7. A three-dimensional holographic liquid crystal display system comprising:
- a. a backlight;
 - b. a first waveguide hologram;
 - c. a liquid crystal display, and
 - 35 d. a second waveguide hologram having a first holographic recording interlaced with a second holographic recording, said second waveguide hologram being positioned between said first waveguide hologram and the liquid crystal display.
- 40 8. The three-dimensional holographic liquid crystal display system of claim 12, further comprising a micro-collimator array positioned between the backlight and the first hologram.
9. The three-dimensional holographic liquid crystal display system of claim 12,
- 45 wherein the backlight is collimated.
10. A method of making an interlaced waveguide hologram master comprising:
- a. forming a first holographic recording at a first position;

b. forming a second holographic recording at a second position wherein
50 said second holographic recording is interlaced with said first
holographic recording.

11. The method claim 15, wherein forming the first holographic recording further
comprises:

55 positioning a photolithographic mask in a first position over a substrate
coated with emulsion and indexing fluid;

positioning a view region mask in a corresponding first position, then
forming the first holographic recording;

and, wherein forming the second holographic recording further comprises:

60 positioning the photolithographic mask in a second position over the
substrate coated with emulsion and indexing fluid;

positioning a view region mask in a corresponding second position, then
forming the second holographic recording.

65 12. The method of claim 16, wherein the first position corresponds a to a right
viewing field and the second position corresponds to a left viewing field.

13. The method of claim 16, wherein the photolithographic mask comprises a series
of equally spaced lines, wherein predetermined lines mask holographic
70 reccording.

14. The method of claim 18, wherein each line has a width approximately equal to the width of a standard pixel.
- 75 15. The method of claim 19, wherein the width of each line is between approximately 200 to 300 microns.
16. The method of claim 16 wherein the view region mask comprises a series of blacked out regions separated by a predetermined distance.
- 80 17. The method of claim 21, wherein the predetermined distance is approximately 2.5 inches.
18. The method of claim 16, wherein the emulsion layer is formed of silver halide.
- 85 19. A method of making a three-dimensional holographic liquid crystal display system comprising:
- a. providing a first waveguide hologram;
 - b. providing a second waveguide hologram having a first holographic recording interlaced with a second holographic recording;
 - 90 c. providing a backlight and a liquid crystal display;

d. arranging said first waveguide hologram and said second waveguide
hologram between said backlight and said liquid crystal display so that
said first waveguide hologram is aligned adjacent to said backlight and
95 said second waveguide hologram is aligned between said first waveguide
hologram and said liquid crystal display.

20. The method of claim 24, further comprising positioning a micro-collimator
array between the backlight and said first hologram.

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